

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	GAS SPECIE ELECTRON-JUMP CHEMICAL ENERGY CONVERTER
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Application Number : 10/625801



Confirmation Number: 9026

First Named Applicant: Anthony Zuppero

Attorney Docket Number: 22122878-70

Art Unit:

Examiner:

Search string: (6172427).pn

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US Patent Documents

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init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
AO	1	6172427	2001-01-09	Shinohara et al.	—	—	—

Remarks

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This information disclosure statement is being filed under 37 C.F.R. 1.97(b)(4), before the mailing date of a first Office action after the filing of a request for continued examination under 1.114.

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Application Number : 10/625801



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First Named Applicant: Anthony Zuppero

Attorney Docket Number: 22122878-70

Art Unit: 1753

Examiner: Alan D Diamond

Search string: (3925235).pn

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init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
POO	1	3925235	1975-12-09	Lee	-	-	-

Signature

Examiner Name	Date
<u>Alan D. Diamond</u>	5/10/05

PTO/SB/08A (08-03)

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Sheet 1 of 63

Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zupp
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Al. S.

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Sheet

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppe
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	2212287-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No./	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, card, symposium, catalog, etc.), date, page(s), volume-issue numbers(s), publisher, city and/or country where published	T2
ADD	22	HARRISON, P. et al., The Carrier Dynamics of Far-Infrared Intersubband Lasers and Tunable Emitters, Institute of Microwaves and Photonics, University of Leeds, U.K., pp. 1-64 (Date Unknown).	-
ADD	23	WEBER, et al., To X2 Electron Transfer Times In Type-II GaAs/A1As Superlattices Due to Emission of Confined and Interface Phonons, Superlattices and Microstructures, Vol. 23, No. 2 (1998).	-
ADD	24	FANN, W.S. et al., Electron Thermalization in Gold, Physical Review B, Brief Reports, Vol. 46, No. 20, (1992)	-
ADD	25	Ultrafast Surface Dynamics Group, Time-Resolved Two-Photon Photoemission (TR-2PPE), http://www.ip.physik.uni-essen.de/aeschilmann/2y_photo.htm (Date Unknown)	-
ADD	26	LEWIS et al., Vibrational Dynamics of Molecular Overlays on Metal Surfaces, Dept of Chemistry, University of Pennsylvania, http://lorax.chem.upenn.edu/molsurf/cucotalk/html . (Date Unknown).	-
ADD	27	RETTNER et al., Dynamics of the Chemisorption of O2 on Pt(111): Dissociation via Direct Population of a Molecularly Chemisorbed Precursor at High Incidence Kinetic Energy, The Journal of Chemical Physics, Vol. 94, Issue 2 (1991)	-
ADD	28	FRIEDMAN et al., SiGe/Si THz Laser Based on Transitions Between Inverted Mass Light-Hole and Heavy Hole Standards, Applied Physics Letters, Vol. 78, No. 4 (2001).	-
ADD	29	HARRISON et al., Population -Inversion and Gain Estimates for a Semiconductor TASER (Date Unknown)	-
ADD	30	HARRISON et al., Theoretical Studies of Subband Carrier Lifetimes in an Optically Pumped Three-Level-Terahertz Laser, Superlattices and Microstructures, Vol. 23, No. 2 (1998)	-
ADD	31	HARRISON et al., Room Temperature Population Inversion in SiGe TASER Designs, IMP, School of Electronic and Electrical Engineering, The University of Leeds. (Date Unknown).	-
ADD	32	SUN et al., Pheonon-Pumped Terahertz Gain in n-Type GaAs/AlGaAs Superlattices, Applied Physic Letters, Vol. 7, No.22 (2001).	-

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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue numbers(s) and/or city and/or country where published	T ²
ADD	33	ALTUKHOV et al., Towards Si _{1-x} Gex Quantum-Well Resonant-State Terahertz Laser, Applied Physics Letters, Vol. 79, No. 24 (2001)	
ADD	34	SUN et al., Intersubband Lasing Lifetimes of SiGe/Si and GaAs/AlGaAs Multiple Quantum Well Structures, Applied Physics Letters, Vol. 66, No. 25 (1995)	
ADD	35	SUN et al., Phonon Pumped SiGe/Si Interminiband Terahertz Laser (Date Unknown)	
ADD	36	SOREF et al., Terahertz Gain in a SiGe/Si Quantum Staircase Utilizing the Heavy-Hole Inverted Effective Mass, Applied Physics Letters, Vol. 79, No. 22 (2004)	
ADD	37	AESCHLIMANN et al., Competing Nonradiative Channels for Hot Electron Induced Surface Photochemistry, Chemical Physics 202, 127-141 (1996)	
ADD	38	AUERBACH, Daniel J., Hitting the Surface-Softly, Science, Vo. 294, pp. 2488-2489 (2001)	
ADD	39	BADESCU et al., Energetics and Vibrational States for Hydrogen on Pt(111), Physical Review Letters, Vol. 88, No. 13 (2002)	
ADD	40	BALANDIN et al., Effect of Phonon Confinement on the Thermoelectric Figure of Merit of Quantum Wells, Journal of Applied Physics, Vol. 84, No. 11 (1998)	
ADD	41	BARTELS et al., Coherent Zone-Folded Longitudinal Acoustic Phonons in Semiconductor Superlattices: Excitation and Detection, Physical Review Letters, Vol. 82, No. 5 (1999)	
ADD	42	BAUMBERG et al., Ultrafast Acoustic Phonon Ballistics in Semiconductor Heterostructures, Physical Review Letters, Vol. 78, No. 17 (1997)	
ADD	43	BEDURFTIG et al., Vibrational and Structural Properties of OH Adsorbed on Pt(111), Journal of Chemical Physics, Vol. 111, No. 24 (1999)	

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

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ADD	44	VALDEN et al., Onset of Catalytic Activity of Gold Clusters on Titania with the Appearance of Nonmetallic Properties, Science, Vol. 281 (1998)	
ADD	45	BONDZIE et al., Oxygen Adsorption on Well-Defined Gold Particles on TiO ₂ (110), J. Vac. Sci. Technol. A17(4) (1999)	
ADD	46	BEZANT et al., Intersubband Relaxation Lifetimes in p-GaAs/AlGaAs Quantum Wells Below the LO-Phonon Energy Measured in a Free Electron Laser Experiment, Semicond. Sci. Technol. 14 (1999)	
ADD	47	BRAKO et al., Interaction of CO Molecules Adsorbed on Metal Surfaces, Vacuum 61,89-93 (2001)	
ADD	48	BURGI et al., Confinement of Surface State Electrons in Fabry-Perot Resonators, Physical Review Letters, Vol. 81, No. 24 (1998)	
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ADD	50	CHANG, Y.M., Interaction of Electron and Hole Plasma with Coherent Longitudinal Optical Phonons in GaAs, Applied Physics Letter, Vol. 80, No. 14 (2002)	
ADD	51	CHANG et al., Observation of Coherent Surface Optical Phonon Oscillations by Time-Resolved Surface Second-Harmonic Generation, Physical Review Letters, Vol. 78, No. 24 (1997)	
ADD	52	CHANG et al., Coherent Phonon Spectroscopy of GaAs Surfaces Using Time-Resolved Second-Harmonic Generation, Chemical Physics 251, 283-308 (2000)	
ADD	53	CHANG et al. Observation of Local-Interfacial Optical Phonons at Buried Interfaces Using Time-Resolved Second Harmonic Generation, Physical Review B, Vol. 59, No. 19 (1999)	
ADD	54	CHEM et al.; Stimulate-Emission-Induced Enhancement of the Decay Rate of Longitudinal Optical Phonons in III-V Semiconductors; Applied Physics Letters, Vol. 80, No. 16 (2002)	

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.*	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue numbers, publisher, city and/or country where published	**
ADD	55	CORCELLI et al., Vibrational Energy Pooling In CO on NaCl(100): Methods, Journal of Chemical Physics, Vol. 116, No. 18 (2002),	
ADD	56	FIERZ et al., Time-Resolved 2-Photon Photoionization on Metallic Nanoparticles, Appl. Phys. B 68 (1999); http://www.lip.physik.uni-essen.de/aeschlimann/abstract.htm#6	
ADD	57	BEZANT et al., Intersubband Relaxation Lifetimes in p-GaAs/AlGaAs Quantum Wells Below the LO-Phonon Energy Measured in a Free Electron Laser Experiment, Semicond. Sci. Technol., 14 No. 8 (1999)	Same as cite no. 46
ADD	58	BONDZIE et al., Oxygen Adsorption on Well-Defined Gold Particles on TiO ₂ (110), Journal of Vacuum Science & Technology A: Vacuum, Surfaces and Films, Vol. 17, Issue 4, pp. 1717-1720 (1999).	Same as cite no. 45
ADD	59	HARRISON et al., Maximising the Population Inversion, by Optimizing the Depopulation Rate, in Far-Infrared Quantum Cascade Lasers (2001)	
ADD	60	HARRISON et al., The Carrier Dynamics of Terahertz Intersubband Lasers, Some Publishing Company (1999)	
ADD	61	FANN et al., Electron Thermalization in Gold, Physical Review B, Vol. 46, No. 20 (1992)	Same as cite no. 24
ADD	62	CUMMINGS et al., Ultrafast Impulsive Excitation of Coherent Longitudinal Acoustic Phonon Oscillations in Highly Photoexcited InSb, Applied Physics Letters, Vol. 79, No. 6 (2001)	
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ADD	64	DEBERNARDI et al., Anharmonic Phonon Lifetimes in Semiconductors from Density-Functional Perturbation Theory, Physical Review Letters, Vol. 75, No. 9 (1995)	
ADD	65	DAVIS et al., Kinetics and Dynamics of the Dissociative Chemisorption of Oxygen on Ir(111), J. Chem. Phys. 109 (3) (1997).	

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ADD	66	CHOI et al., Ultrafast Carrier Dynamics in a Highly Excited GaN Epilayer, Physical Review B., Vo. 63, 115315 (2001)	
ADD	67	DIEKHONER et al., Parallel Pathways in Methanol Decomposition on PT(111), Surface Science 409, pp. 384-391 (1998)	
ADD	68	DEMIDENKO et al., Piezoelectrically Active Acoustic Waves Confined in a Quantum Well and Their Amplification by electron Drift, Semiconductor Physics, Quantum Electronics & Optoelectronics, Vol. 9, No. 4, pp. 427-431 (2000)	
ADD	69	de PAULA et al., to X2 Electron Transfer Times in Type-II Superlattices Due to Emission of Confined Phonons, Appl. Phys. Lett. 65 (10) (1994)	Same as cite no. 23
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ADD	72	DEMIDENKO et al., Generation of Coherent Confined Acoustic Phonons by Drifting Electrons In Quantum Wire, Semiconductor Physics, Quantum Electronics-&-Optoelectronics, Vol. 3, No. 4, pp. 432-437 (2000)	
ADD	73	DENZLER et al., Surface Femtochemistry: Ultrafast Reaction Dynamics Driven by Hot Electron Mediated Reaction Pathways, World Scientific (2001)	
ADD	74	FATTI et al., Temperature-Dependent Electron-lattice Thermalization in GaAs, Physical Review B, Vol. 59, No. 7 (1999)	
ADD	75	ANASTASSAKIS et al., The Physics of Semiconductors, Vol. 2, World Scientific (1990)	
ADD	76	de PAULA et al., Carrier Capture Processes in Semiconductor Superlattices due to Emission of confined Phonons, J. Appl. Phys. 77 (12) (1995)	

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Alan D.

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AGD	73	ENGSTROM et al., Comparing the Vibrational Properties of Low-Energy Modes of a Molecular and an Atomic Adsorbate: CO and O on Pt(1,1), Journal of Chemical Physics, Vol. 112, No. 4 (2000)	
ADD	78	GLAVIN et al., Generation of High-Frequency Coherent Acoustic Phonons in a Weekly Coupled Superlattice, Applied Physics Letters, Vol. 74, No. 23 (1999)	
ADD	79	FRIEDMAN, SiGe/Si Thz Laser Based on Transitions Between Inverted Mass Light-Hole and Heavy-Hole Subbands, Applied Physics Letters, Vol. 78, No. 4 (2001)	Same as cite no. 28
ADD	80	ERMOSHIN et al., Vibrational Energy Relaxation of Adsorbate Vibrations: A theoretical Study of the H/Si(111) System, J. Chem. Phys. 105 (2001)	
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ADD	82	GERGEN et al., Chemically Induced Electronic Excitations at Metal Surfaces, Science, Vol. 294 (2001).	
ADD	83	HAGSTON et al., Simplified Treatment of Scattering Processes in Quantum Well Structures, Journal of Applied Physics, Vol. 90, No. 3 (2001).	
ADD	84	HARRISON et al., Room Temperature Population Inversion In SiGe TASER designs (Date Unknown)	
ADD	85	HARRISON et al., The Carrier Dynamics of Terahertz Triratessubband Lasers, Some Publishing Company (1999)	Same as cite no. 31
ADD	86	HARRISON et al., Population-Inversion and Gain Estimates for a Semiconductor Taser (Date Unknown)	Same as cite no. 60
ADD	87	HARRISON et al., Theoretical studies of Subband Carrier Lifetimes In an Optically Pumped Three-Level Terahertz Laser, Superlattices and Microstructures, Vol. 23, No. 2 (1998)	Same as cite no. 30

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Alan D. Diamond

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Sheet 12 of 62

Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
ADD	88	HARRISON et al., The Carrier Dynamics o Far-Infrared Intersubband Lasers and Tunable Emitters, www.ee.leeds.ac.uk/~homes/ph/ (Date Unknown).	Same as cite no. 22
ADD	89	HESS et al., Hot Carrier Relaxation by Extreme Electron-LO Phonon Scattering In GaN (Date Unknown).	-
ADD	90	HOHLFELD et al., Electron and Lattice Dynamics Following Optical Excitation of Metals, Chemical Physics 251, pp. 237-258 (2000)	-
ADD	91	HUANG et al., Vibrational Promotion of Electron Transfer, Science, Vol. 290 (2000)	-
ADD	92	KAWAKAMI et al., Quantum-well States In Copper Thin Films, Nature, Vol. 398 (1999)	-
ADD	93	KOHLER et al., Enhanced Electron-Phonon Coupling at the Mo and W (110) Surfaces Induced by Adsorbed Hydrogen, mrl-th/9510004 (1995)	-
ADD	94	LEWIS et al., Continuum Elastic Theory of Adsorbate Vibrational Relaxation, J. Chem. Phys. 108 (3)-(1998)	-
ADD	95	LEWIS et al., Controlling Adsorbate Bivrational Lifetimes Using Superlattices, Physical Review B, Vol. 63, 085402 (2001)	-
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ADD	98	LEWIS et al, Substrate-Adsorbate Coupling In Co-Adsorbed Copper, Physical Review Letters, Vol. 77, No. 26 (1996)	-

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	99	KRAUSS et al., Coherent Acoustic Phonons In a Semiconductor Quantum Dot, Physical Review Letters, Vol. 79, No. 26 (1997)
ADD	100	LUGLI et al., Interaction of Electrons with Interface Phonons in GaAs/AlAs and GaAs/AlGaAs Heterostructures, Semicond. Sci. Technol. 7 (1992)
ADD	101	NIENHAUS et al., Electron-Hole Pair Creation at Ag and Cu Surfaces by Adsorption of Atomic Hydrogen and Deuterium, Physical Review Letters, Vol. 82, No. 2 (1999)
ADD	102	MULET et al., Nanoscale Radiative Heat Transfer Between a Small Particle and a Plane Surface, Applied Physics Letters, Vol 78, No. 19 (2001)
ADD	103	NIENHAUS et al., Direct Detection of Electron-Hole Pairs Generated by Chemical Reactions on Metal Surfaces, Surface Science 445, pp. 335-342 (2000)
ADD	104	NIENHAUS, Hermann, Electronic Excitations by Chemical Reactions on Metal Surfaces, Surface Science Reports 45, pp. 1-78 (2002)
ADD	105	NOLAN et al., Translational Energy selection of Molecular Precursors to Oxygen Adsorption on Pt(111), Physical Review Letters, Vol. 81, No. 15 (1998)
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ADD	107	NOLAN et al., Molecularly Chemisorbed Intermediates to Oxygen Adsorption on Pt(111): A Molecular Beam and Electron Energy-Loss Spectroscopy Study, Journal of Chemical Physics, Vol. 111, No. 8 (1999)
ADD	108	NOLAN et al., Direct Verification of a High-Translational-Energy Molecular Precursor to Oxygen Dissociation on Pd(111), Surface Science 419 (1998)
ADD	109	OGAWA et al., Optical Intersubband Transitions and Femtosecond Dynamics In Ag/Fe(100) Quantum Wells, Physical Review Letters, Vol. 88, No. 11 (2002)

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

Sheet 14 of 62

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ADD	110	PLIHAL et al., Role of Intra-Adsorbate Coulomb Correlations in Energy Transfer at Metal Surfaces, Physical Review B, Vol. 58, No. 4 (1998)	-
ADD	111	PAGGEL et al., Quantum-Well States as Fabry-Perot Modes in a Thin-Film Electron Interferometer, Science, Vol. 283 (1999)	-
ADD	112	PAGGEL et al., Quasiparticle Lifetime in Macroscopically Uniform Ag/Fe(100) Quantum Wells, Physical Review Letters, Vol. 81, No. 25 (1998)	-
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ADD	117	STIPE et al., Atomistic Studies of O ₂ Dissociation on Pt(111) Induced by Photons, Electrons and by Heating, J. Chem. Phys. 107 (16) (1997)	-
ADD	118	SUN et al., Phonon Pumped SiGe/Si Interminiband Terahertz Laser, pp. 1-11 (Date Unknown).	Same as cite no. 35
ADD	119	SOREF et al., Terahertz Gain in a SiGe/Si Quantum Staircase Utilizing the Heavy-Hole Inverted Effective Mass, Applied Physics Letters, Vol. 78, No. 22 (2001)	Same as cite no. 36
ADD	120	QU et al., Long-Lived Phonons, Physical Review B, Vol. 48, No. 9 (1993)	-

Examiner Signature	<i>Alan D.</i>	Date Considered	5/10/05
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Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	121	PONTIUS, et al., Size-Dependent Hot-Electron Dynamics in Small Pdn-Clusters, Journal of Chemical Physics, Vol. 115, No. 22 (2001)	-
ADD	122	SMIT et al., Enhanced Tunnelling Across Nanometer-Scale Metal-Semiconductor Interfaces, Applied Physics Letters, Vol. 80, No. 14 (2002)	-
ADD	123	QIU et al., Long-Distance and Damping of Low-Frequency Phonon Polariton in LiNbO ₃ , Physical Review B, Vol. 66, No. 10 (1997)	-
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ADD	126	SHIKIN et al., Phase Accumulation Model Analysis of Quantum Well Resonances Formed in Ultra-Thin Ag, Au Films on W(110), Surface Science (2001)	-
ADD	127	SNOW et al., Ultrathin PtSi Layers Paterned by Scanned Probe Lithography, Applied Physics Letters, Vol. 79, No. 8 (2001)	-
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ADD	130	TRIPA et al., Surface-Aligned Photochemistry: Alining Reactive Oxygen Atoms Along a Single Crystal Surface, Journal of Chemical Physics, Vol. 112, No. 5 (2000)	-
ADD	131	TRIPA et al., Surface-Aligned Reaction of Photogenerated Oxygen Atoms with Carbon Monoxide Targets, Nature, Vol. 398 (1999)	-

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Application Number	10/825,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond

Attorney Docket Number 22122878-70

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ADD	132	TRIPPA et al., Kinetics Measurements of CO Photo-Oxidation on Pt(111), J. Chem. Phys. 105 (4) (1996)	-
ADD	133	TAYLOR et al., Strong Electron-LO Phonon Scattering and Hot Carrier Relaxation in GaN, Abstract No. ba249KW3 (Date Unknown)	-
ADD	134	SUN et al., Phonon-Pumped Terahertz Gain in n-Type GaAs/AlGaAs Superlattices, Applied Physics Letters, Vol. 78, No. 22 (2001)	Same as cite no. 32
ADD	135	TOM et al., Coherent Phonon and Electron Spectroscopy on Surfaces Using Time-Resolved Second-Harmonic Generation (Date Unknown)	-
ADD	136	TIUSAN et al., Quantum Coherent Transport Versus Diode-Like Effect in Semiconductor-Free Metal/Insulator Structure, Applied Physics Letters, Vol. 79, No. 25 (2001)	-
ADD	137	STROMQUIST et al., The Dynamics of H Absorption in and Adsorption on Cu(111), Surface Science 397, pp. 382-394 (1998)	-
ADD	138	TRIPPA et al., Surface-Aligned Photochemistry: Aiming Reactive Oxygen Atoms Along a Single Crystal Surface, Journal of Chemical Physics, Vol. 112, No. 5 (2000)	Same as cite no. 130
ADD	139	TSAI et al., Theoretical Modeling of Nonequilibrium Optical Phonons and Electron Energy Relaxation in GaN, Journal of Applied Physics, Vol. 85, No. 3 (1999)	Same as cite no. 129
ADD	140	WEBER et al., Carrier Capture Processes in GaAs-AlGaAs Quantum Wells Due to Emission of Confined Phonons, Appl. Phys. Lett. 63 (22) (1993)	-
ADD	141	WINTTERLIN et al., Atomic and Macroscopic Reaction Rates of a Surface-Catalyzed Reaction, Science, Vol. 278 (1997)	-
ADD	142	YEO et al., Calorimetric HEats for CO and Oxygen Adsorption and for the Catalytic CO Oxidation Reaction on Pt(111), J. Chem. Phys. 106 (1) (1997)	-

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Sheet 17 of 62

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zupperto
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	143	WITTE et al., Low Frequency Vibrational Modes of Adsorbates, Surface Science, No. 1362 (2002)	
ADD	144	VALDEN et al., Onset of Catalytic Activity of Gold Clusters on Titania with The Appearance of Nonmetallic Properties, Science, Vol. 281 (1998)	Same as cite no. 44
ADD	145	XU et al., Electrical Generation of Terahertz Electromagnetic Pulses by Hot-Electrons In Quantum Wells, Superlattices and Microstructures, Vol. 22, No. 1 (1997)	
ADD	146	WANKE et al., Injectorless Quantum-Cascade Lasers, Applied Physics Letters, Vol. 78, No. 25 (2001)	
ADD	147	ZHDANOV, Vladimir P., Nm-Sized Metal Particles on a Semiconductor Surface, Schottky Model, etc., Surface Science, SUSC.2931 (2002)	
ADD	148	YEO et al., Calorimetric Investigation of NO and O adsorption on Pd(100) and the Influence of Preabsorbed Carbon, J. Chem. Phys. 106 (5) (1997)	Same as cite no. 142
ADD	149	ZAMBELLI et al., Complex Pathways in Dissociative Adsorption of Oxygen on Platinum, Nature, Vol. 390 (1997)	
ADD	150	ZHDANOV et al., Substrate-Mediated Photoinduced Chemical Reactions on Ultrathin Metal Films, Surface Science 432 (1999)	
ADD	151	ALTUKHOV et al., Towards Si1-xGex Quantum-well Resonant-State Terahertz Laser, Applied Physics Letters, Vol. 79, No. 24 (2001)	Same as cite no. 33
ADD	152	FRIEDMAN et al., SiGe/Si THz Laser Based on Transitions Between Inverted Mass Light-Hole and Heavy-Hole Subbands, Applied Physics Letters, Vol. 78, No. 4 (2001)	
ADD	153	HARRISON et al., The Carrier Dynamics of Terahertz Intersubband Lasers, Some Publishing Company (1999)	Same as cite no. 28
			Same as cite no. 60

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Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	162	ALBANO et al., Adsorption-Kinetics of Hot Dimers, SciSearch Database of the Institute for Scientific Information (1999)	—
ADD	163	CASASSA et al., Time-Resolved Measurements of Vibrational Relaxation of Molecules on surfaces: Hydroxyl Groups on Silica Surfaces, Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films, Vol. 3, Issue 3 (1985)	—
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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
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ADD	165	HYH et al., Methanol Oxidation of Palladium Compared to Rhodium at Ambient Pressures as Probed by Surface-Enhanced Raman and Mass Spectroscopies, Journal of Catalysis, Vol. 174 (2) (1998)	-
ADD	166	GUMHALTER et al., Effect of Electronic Relaxation on Covalent Adsorption Reaction Rates, Physical Review B, Vol. 30, Issue 8 (1984)	-
ADD	167	NOLAN et al., Surface Science, Direct Verification of a High-Translational-Energy Molecular Precursor to Oxygen Dissociation on Pd(111), Surface Science, Vol. 419 (1999)	-
ADD	168	PHIHAL et al., Role of Intra-Adsorbate Coulomb Correlations in Energy Transfer at Metal Surfaces, Physical Review B, Vol. 58, Issue 4 (1998)	-
ADD	169	TULLY et al., Electronic and Phonon Mechanisms of vibrational Relaxation: CO on Cu(100), J. Vac. Sci. Technol. A 11(4) (1993)	Same as cite no. 110
ADD	170	DIMATTEO et al., Enhanced Photogeneration of Carriers in a Semiconductor Via Coupling Across a Nonisothermal Nonascale Vacuum Gap, Applied Physics Letters, Vol. 78, Issue 12 (2001)	-
ADD	171	TRIPA et al., Surface-Aligned Photochemistry: Alining Reactive Oxygen Atoms Along a Single Crystal Surface, The Journal of Chemical Physics, Vol. 112, Issue 5 (2000)	Same as cite no. 130
ADD	172	YATES et al., Special Adsorption and Reaction Effects at Step Defect Sites on Platinum Single Crystal Surfaces (2000)	-
ADD	173	DEKORSY et al., Coherent Acoustic Phons in Semiconductor Superlattices, phys. stat. sp.;. (b) 215, p 425-430 (1999)	-

Examiner Signature

Alan D.

Date Considered

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Sheet 21 of 62

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Sheet 22 of 62

Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue numbers, publisher, city and/or country where published	T ²
ADD	184	AUERBACH, Daniel J.; "Hitting the Surface--Softly"; Science, 294, (2001), pp. 2488-2489	-
			Same as cite no. 38
ADD	185	BONDZIE, V. A., et al.; "Oxygen adsorption ... gold particles ... TiO ₂ (110)"; J. Vac. Sci. Tech. A, (1999) 17, pp. 1717 and figure 3	-
			Same as cite no. 45
ADD	186	BOULTER, James; "Laboratory Measurement of OH ..."; http://pearl.lanl.gov/wsa2002/WSA2002talks.pdf (2002)	-
ADD	187	CHAN H.Y.H., et al.; "Methanol Oxidation On Palladium Compared To Rhodium..."; J. Catalysis v. 174(#2) pp. 191-200 (1998) (abstract and figure 1 only)	-
			Same as cite no. 165
ADD	188	CHIANG, T.-C.; "Photoemission studies of quantum well states in thin films"; Surf. Sci. Rpts. 39 (2000) pp 181-235	-
			Same as cite no. 63
ADD	189	CHUBB, D. L., et al; "Semiconductor Silicon as a Selective Emitter"; http://www.thermopv.org/TPV5-2-05-Chubb.pdf(abstract only)	(Date Unknown), -
ADD	190	CORCELLI, S. A., et al.; "Vibrational energy pooling in CO on NaCl(100) ..."; J. Chem. Phys.(2002) 116, pp. 8079-8092	-
			Same as cite no. 55
ADD	191	DANBSE, A., et al; "Influence of the substrate electronic structure on metallic quantum well ..."; Prog. Surf. Sci. 67, (2001), pp 249-258	-
ADD	192	DAVIS, J. B., et al.; "Kinetics and dynamics of the dissociative chemisorption of oxygen on Ir(111)"; J. Chem. Phys. 107 (3), (1997), pp 943-952	-
			Same as cite no. 65

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	193	DIEKHONER, L., et al.; "Parallel pathways in methanol... Pt(111)"; Surf. Sci. 409 (1998) pp 384-391	-
			Same as cite no. 67
ADD	194	DIBSTING, D., et al.; "Aluminum oxide tunnel junctions..."; Thin Solid Films, Vol 342 (1-2) (1999) pp. 282-290	-
ADD	195	DIMATTEO, R. S., et al.; "Enhanced photogeneration of carriers... vacuum gap"; Appl. Phys. Lett. (2001) 79, pp. 1894-1896	-
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ADD	196	DIMATTEO, R. S., et al.; "Introduction to and Experimental Demonstration of Micron-gap ThermoPhotoVoltaics"; http://www.thermopv.org/17DIMatteo.html (abstract only) (Date Unknown),	-
ADD	197	DOGWILER, Urs, et al.; "Two-dimensional ... catalytically stabilized ... lean methane-air ..."; Combustion and Flame, (1999), 116(1,2), pp 243-258	-
ADD	198	ECHENIQUE, P. M., et al.; "Surface-state electron dynamics in noble metals"; Prog. Surf. Sci., 67, (2001), pp 271-283	-
APP	199	ENDO, Makoto, et al.; "Oxidation of methanol ... on Pt(111) ..."; Surf. Sci. 441 (1999) L931-L937, Surf. Sci. Letters	-
ADD	200	FAN, C. Y., et al.; "The oxidation of CO on RuO ₂ ..."; J. Chem. Phys. 114, (2001), pp. 10058-10062	-
APP	201	FANN, W.S., et al.; "Electron thermalization in gold"; Phys. Rev. B (1992) 46 pp. 13592-13595	-
			Same as cite no. 24

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Sheet 24 of 62

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON-PATENT LITERATURE DOCUMENTS

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ADD	202	GER, Adam T., et al.; "The dynamics of O ₂ adsorption on Pt(533)..."; J. Chem. Phys.(2000) 113, pp. 10333-10343	-
ADD	203	GERGEN, Brian, et al.; "Chemically Induced Electronic Excitations at Metal Surfaces"; Science,294, (2001) pp. 2521-2523	Same as cite no. 82
ADD	204	GULIANTS, Eleon A., et al.; "A 0.5-μm-thick polycrystalline silicon Schottky..."; Appl. Phys. Lett., (2002), 80, pp. 1474-1476	-
ADD	205	GUMHALTER, B., et al.; "Effect of electronic relaxation ... adsorption reaction rates"; Phys. Rev. B (1984) 30 pp. 3179-3190	Same as cite no. 166
ADD	206	HALONEN, Lauri, et al.; "Reactivity of vibrationally excited methane on nickel..."; J. Chem. Phys.(2001) 115, pp. 5611-5619	-
ADD	207	HASBAGAWA, Y., et al.; "Modification of electron ... standing wave ... Pd ..."; Surf. Sci., in press, 11 April 2002	-
ADD	208	HENRY, Claude R.; "Catalytic activity ... nanometer-sized metal clusters"; Applied Surf. Sci., 164, (2000) pp 252-259	-
ADD	209	HESS, S., et al.; "Hot Carrier Relaxation ... Phonon Scattering in GaN"; http://www.physics.ox.ac.uk/raylor/images/hot%20carrier%20poster.pdf (Date Unknown)	Same as cite no. 89
ADD	210	HO, Wilson; http://www.lassp.cornell.edu/lassp_data/wilsonho.html (Date Unknown).	-

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ADD	211	HOHLFELD, J., et al.; "Electron and lattice dynamics ... optical excitation of metals"; Chemical Physics, 251 (2000) pp 237-258	-	Same as cite no. 90
ADD	212	HONKALA, Karolina, et al.; "Ab initio study of O2 precursor states on the Pd(111) ..."; J. Chem. Phys., (2001) 115, pp. 2297-2302	-	
ADD	213	HOU, H.; Y., et al.; "Chemical Interactions of Super-Excited Molecules on Metal Surfaces"; http://www2.chem.ucsbd.edu/~wodtke/papers/dan1.pdf (Date Unknown).	-	
ADD	214	HOU, H., et al.; "Direct multiquantum relaxation of highly vibrationally excited NO ..."; J. Chem. Phys., 110, (1999) pp 10660 - 10663	-	
ADD	215	HUANG Y., et al.; "Observation of Vibrational Excitation and Deexcitation for NO from Au(111) ..."; Phys. Rev. Lett., 84, (2000) pp 2985 - 2988	-	Same as cite no. 97
ADD	216	HUANG, Yuhui, et al.; "Vibrational Promotion of Electron Transfer"; SCIENCE, VOL 290, 6 OCTOBER 2000, pp 111 - 113	-	Same as cite no. 91
ADD	217	IBH; "NanoLED overview"; http://www.ibh.co.uk/products/light_sources/nanoled_main.htm (Date Unknown).	-	
ADD	218	IBH; "Red picosecond laser sources"; http://www.ibh.co.uk/products/light_sources/nanoled/heads/red_laser_heads.htm (Date Unknown).	-	
ADD	219	IFTIMIA, Ilana, et al.; "Theory ... scattering of molecules from surface"; Phys. Rev. B (2002) 65, Article 125401	-	

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	220	ISHIKAWA, Yasuyuki, et al.; "Energetics of H ₂ O dissociation and COads+OHads reaction ... Pt..."; Surf. Sci. preprints SUSC 12830, 27 April 2002	-
ADD	221	JOHNSON, R. Collie ; "Molecular substitution ... terahertz switch arrays"; EE Times, (04/10/00, 3:35 p.m. EST) http://www.eet.com/story/OBG20000410S0057 (Date Unknown).	-
ADD	222	KAO, Chia-Ling, et al.; "The adsorption ... molecular carbon dioxide on Pt(111) and Pd(111)"; Surf. Sci., (2001) Article 12570	-
ADD	223	KATZ, Gil, et al.; "Non-Adiabatic Charge Transfer Process of Oxygen on metal Surfaces"; Surf. Sci. 425(1) (1999) pp. 1-14	-
ADD	224	KAWAKAMI, R. K., et al.; "Quantum-well states in copper thin films"; Nature, 398, (1999) pp 132 - 134	Same as cite no. 92
ADD	225	KOMEDA, T., et al.; "Lateral Hopping of Molecules Induced by Excitation of Internal Vibration..."; Science, 295, (2002) pp 2055-2058	-
ADD	226	LEWIS, Steven P., et al.; "Continuum Elastic Theory of Adsorbate Vibrational Relaxation"; J. Chem. Phys. 108, 1157 (1998)	Same as cite no. 94
ADD	227	LEWIS, Steven P., et al.; "Substrate-adsorbate coupling in CO-adsorbed copper"; Phys. Rev. Lett. 77, 5241 (1996)	Same as cite no. 98
ADD	228	LI, Shengping, et al.; "Generation of wavelength-tunable single-mode picosecond pulses ..."; Appl. Phys. Lett. 76, (2000) pp 3676 - 3678	-

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	229	MITSUI, T., et al.; "Coadsorption and interactions of O and H on Pd(111)"; Surf. Sci., Article 12767, (2002)	-
ADD	230	MOULA, Md. Golam, et al.; "Velocity distribution of desorbing CO ₂ in CO oxidation on Pd(110)..."; Applied Surf. Sci., 169-170, pp 268-272 (2001)	-
ADD	231	MULST, Jean-Philippe, et al.; "Nanoscale radiative heat transfer between a small particle ..."; Appl. Phys. Lett., 78, (2001) p 2931	Same as cite no. 102
ADD	232	NIENHAUS, H., et al.; "Direct detection of electron-hole pairs generated by chemical reactions on metal surfaces"; Surf. Sci. 445 (2000) pp 335- 342	Same as cite no. 103
ADD	233	NIENHAUS, H.; "Electronic excitations by chemical reactions on metal surfaces"; Surf. Sci. Rpts. 45 (2002) pp 1 - 78	Same as cite no. 104
ADD	234	NIENHAUS, H., et al.; "Selective H atom sensors using ultrathin Ag/Si Schottky diodes"; Appl. Phys. Lett. (1999) 74, pp. 4046-4048	Same as cite no. 106
ADD	235	NIENHAUS, Hermann; "Electron-hole pair creation by reactions at metal surfaces"; APS, March 20-26, 1999, Atlanta, GA, Session SC33 [SC33.01]	-
ADD	236	NIENHAUS, H., et al.; "Electron-Hole Pair Creation at Ag and Cu ... of Atomic Hydrogen and Deuterium"; Phys. Rev. Lett., 82, (1999) pp. 446-449	Same as cite no. 101
ADD	237	NOLAN P. D., et al.; "Direct verification of... precursor to oxygen dissociation on Pd(111)"; Surf. Sci. v. 419(#4) pp. L107-L113, (1998)	Same as cite no. 108

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Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
ADD	247	SCHBWBE, P., et al.; "CO ₂ Production at the Single-Molecule Level"; http://www.alp.org/cnews/physnews/2001/split/561-1.htm (2001).	-
ADD	248	SHENG, H., et al.; "Schottky diode with Ag on (110) epitaxial ZnO film"; Appl. Phys. Lett. (2002) 80, pp. 2132-2134	-
ADD	249	SMIT, G. D. J., et al.; "Enhanced tunneling across nanometer-scale metal-semiconductor interfaces"; Appl. Phys. Lett. (2002) 80, pp. 2568-2570	Same as cite no. 122
ADD	250	SNOW, R. S., et al.; "Ultrafast PtSi layers patterned by scanned probe lithography"; Appl. Phys. Lett. (2001) 79, pp. 1109-1111	Same as cite no. 127
ADD	251	STIPB, B. C., et al.; "Atomistic studies of O ₂ dissociation on Pt(111) induced by photons ..."; J. Chem. Phys., (1997) 107 pp. 6443-6447	-
ADD	252	SUN, C.-K., et al.; "Femtosecond studies of carrier dynamics in InGaN"; Appl. Phys. Lett. (1997) 70 pp. 2004-2006	Same as cite no. 117
ADD	253	SVENSSON, K., et al.; "Dipole Active Vibrational Motion in the Physisorption Well"; Phys. Rev. Lett., 78, (1997) pp 2016-2019	-
ADD	254	TARVER, Craig M.; "Non-Equilibrium Chemical Kinetic ... Explosive Reactive Flows"; Fall 1999 IMA Workshop: High-Speed Combustion in Gaseous and Condensed-Phase	-
ADD	255	TAYLOR, R.A., et al.; "Strong Electron-LO Phonon Scattering and Hot Carrier Relaxation in GaN"; http://www.physics.ox.ac.uk/taylor/images/ha249kw3.pdf (Date Unknown)	Same as cite no. 133

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U. S. PATENT DOCUMENTS				
Citation Details*	Cite No. ¹	Document Number Number-Kind Code ² (if any)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
APD	271	US-5032885	08-1999	DeBellis et al. Same as cite no. 15
APD	272	US-2001/0018823-A1	09-2001	Zuppero et al.
APD	273	US-2002/0121088-A1	09-2002	Zuppero et al. Same as cite no. 177

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A check mark in this box indicates that English is the language used by the applicant to file the application. The applicant is to place a check mark here if English language collection of information is required by 37 CFR 1.87 and 1.88. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments or amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Sheet

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume/issue number(s), publisher, city and/or country where published.	**
ADD	274	REE, J. et al., "Dynamics of Gas-Surface Interactions: Reaction of Atomic Oxygen with Chemisorbed Hydrogen on TUNGSTEN," Journal of Physical Chemistry, Vol. 101 (#25), pp. 4523 - 4534, June 19, 1997.	-
ADD	275	REE, J. et al., "Reaction of atomic oxygen with adsorbed carbon monoxide on a platinum surface," Journal of Chemical Physics, Vol. 104, Issue 2, pp. 742 - 757, January 8, 1996.	-
ADD	276	NOLAN, P.D. et al., "Molecularly chemisorbed intermediates to oxygen adsorption on Pt(111): A molecular beam and electron energy-loss spectroscopy study," Journal of Chemical Physics, Vol. 111, No. 8, pp. 3696 - 3704, August 22, 1999.	Same as cite no. 107
ADD	277	NOLAN, P. D. et al., "Translation Energy Selection of Molecular Precursors to Oxygen Adsorption on Pt (111)," Physical Review Letters, Vol. 81, No. 15, pp. 3179 - 3182, October 12, 1998.	Same as cite no. 105
ADD	278	MURPHY, M. J. et al., "Inverted vibrational distributions from N ₂ recombination at Ru(001): Evidence for a metastable bimolecular chemisorption well," Journal of Chemical Physics, Vol. 110, No. 14, pp. 6954 - 6962, April 8, 1999.	-
ADD	279	KIM, M. S. et al., "Reaction of Gas-Phase Atomic Hydrogen with Chemisorbed Hydrogen Atoms on an Iron Surface," Bull. Korean Chem. Soc., Vol. 18, No. 9, pp. 985 - 994, May 22, 1997.	-
ADD	280	BONN, M. et al., "Phonon-Versus Electron-Mediated Desorption and Oxidation of CO on Ru(0001)," Science, Vol. 285, pp. 1042 - 1045, August 13, 1999. www.sciencemag.org	-

Examiner Signature

Alan D. Diamond

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Sheet 35 of 62

Complete if Known	
Application Number	10/825,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

Examiner: Signature	Al D. -ia	Date Considered	5/12/25
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Sheet 37 of 62

Complete if Known

Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Complete If Known	
Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zupperto
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

Examiner Signature		Date Considered	5/10/05
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*EXAMINER: In the reference mark(s) made, whether or not they are identical with those in the application, I declare that I have examined the same and that they are not identical with any device or article known to me.

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zupperto
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
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First Named Inventor	Anthony C. Zuppero
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Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
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Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Examiner initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the book (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T2
ADD	316	BONN, M. et al., "Phonon-Versus Electron-Mediated Desorption and Oxidation of CO on Ru(0001)," Science, Vol. 285, No. 5430, Issue of 13 August 1999, pp. 1042-1045.	Same as cite no. 280
ADD	317	DAVIS, J. E. et al., "Kinetics and dynamics of the dissociative chemisorption of oxygen on Ir(111)," J. Chem. Phys., 107 No. 3, 15 July 1997, pp. 943-951.	Same as cite no. 65
ADD	318	GADZUK, J. W., "Hot-electron femtochemistry at surfaces: on the role of multiple electron processes in desorption," Chemical Physics, Vol. 251, year 2000, pp. 87-97.	-
ADD	319	GADZUK, J. W., "Resonance-assisted hot electron femtochemistry at surfaces," Physical Review Letters, May 27, 1996, Vol. 76, Issue 22, pp. 4234-4237.	-
ADD	320	GE, N.-H. et al., "Femtosecond Dynamics of Electron Localization at Interfaces," Science, vol. 279, No. 5348, Issue of 9 Jan 1998, pp. 202-205.	-
ADD	321	GAO, Shiwu, "Quantum kinetic theory of vibrational heating and bond breaking by hot electrons," Physical Review B, Vol. 55, No. 3, 15 Jan 1997-I, pp. 1876-1886.	-
ADD	322	HOU, H. et al., "Enhanced Reactivity of Highly vibrationally Excited Molecules on Metal Surfaces," Science, Vol. 284, No. 5420, Issue of 4 Jun 1999, pp. 1647-1650.	-
ADD	323	NIENHAUS, H. et al., "Direct detection of electron hole pairs generated by chemical reactions on metal surfaces," Surface Science 445 (2000) pp. 335-342.	Same as cite no. 103
ADD	324	NIENHAUS, H. et al., "Selective H atom sensors using ultrathin Ag/Si Schottky diodes," Applied Physics Letters, June 28, 1999, Vol. 74, Issue 26, pp. 4046-4048.	Same as cite no. 106
ADD	325	GAILLARD, Frédéric et al., "Hot electron generation in aqueous solution at oxide-covered tantalum electrodes. Reduction of methylpyridinium and electrogenerated chemiluminescence of Ru(bpy)32+," Journal of Physical Chemistry B., Vol. 103, No. 4, January 28 1999, pp. 667-74.	Same as cite no. 306
ADD	326	ENGSTRÖM, Ulrika and RYBERG, Roger, "Comparing the vibrational properties of low-energy modes of a molecular and an atomic adsorbate: CO and O on Pt (111)," Journal of Chemical Physics, Vol. 112, No. 4, 22 January 2000, pp. 1959-1965.	Same as cite no. 77

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Date Considered

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Application Number	10/625,801
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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	327	NOLAN, P. D. et al., "Molecularly chemisorbed intermediates to oxygen adsorption on Pt (111): A molecular beam and electron energy-loss spectroscopy study," Journal Of Chemical Physics, Vol. 111, No. 8, 22 August 1999.	Same as cite no. 107
ADD	328	NOLAN P. D. et al., "Direct verification of a high-translational-energy molecular precursor to oxygen dissociation on Pd(111)," Surface Science Vol. 419, pp. L107-L113, December 24, 1998.	Same as cite no. 108
ADD	329	OTTO, Andreas et al., "Role of atomic scale roughness in hot electron chemistry," Journal of Physical Chemistry B, Vol. 103, No. 14, April 8, 1999, pp. 2696-2701.	-
ADD	330	PLIHAL, M. et al., "Role of intra-adsorbate Coulomb correlations in energy transfer at metal surfaces," Physical Review B, Vol. 58, No. 4, July 15, 1998, pp. 2191-2206.	Same as cite no. 168
ADD	331	SUNG, Yung-Eun et al., "Enhancement of electrochemical hot electron injection into electrolyte solutions at oxide-covered tantalum electrodes by thin platinum films," Journal of Physical Chemistry B., Vol. 102, No. 49, December 3 1998, pp. 9806-11.	-
ADD	332	ZHDANOV, V. P. et al., "Substrate-mediated photoinduced chemical reactions on ultrathin metal films," Surface Science, Vol. 432 (#3), pp. L599-L603, July 20, 1999.	Same as cite no. 150
ADD	333	NIENHAUS, H., "Electron-hole pair creation by reactions at metal surfaces," American Physical Society, Centennial Meeting Program, March 20-26, 1999, Atlanta, GA, Session SC33 - Metal Surfaces: Adsorbates. http://www.aps.org/meet/CENT99/BAPS/	Same as cite no. 235
ADD	334	NIENHAUS, H et al., "Electron-Hole Pair Creation at Ag and Cu Surfaces by Adsorption of Atomic Hydrogen and Deuterium," Physical Review Letters, Vol. 82, Issue 2, January 11, 1999, pp. 446-449.	Same as cite no. 101

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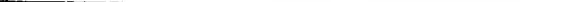
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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U. S. PATENT DOCUMENTS

Examiner Initials*	Clo No.*	Document Number Number-Kind Code ^a (# known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
AD2	337	US-6,337,828	03-2003	Zarling et al.	
PMO	338	US-6,444,476	09-2002	Morgan, Christopher Grant	
AD2	339	US-6,399,397	06-2002	Zarling et al.	
AD2	340	US-6,312,914	11-2001	Kardos et al.	
AD2	341	US-6,251,687	06-2001	Buechler et al.	
AD2	342	US-6,238,931	05-2001	Buechler et al.	
AD2	343	US-6,159,688	12-2000	Kardos et al.	
AD2	344	US-6,891,856	04-1999	Zarling et al.	
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Examiner Initials*	Clo No.*	Foreign Patent Document Country Code ^b -Number ^c -Kind Code ^d (# known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ^e

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.*	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	
AOD	345	US-2003/0207331	11-2003	Wilson et al.	
AOD	346	US-2003/0166307	09-2003	Zuppero et al.	
AOD	347	US-2003/0100119	05-2003	Weinberg et al.	
AOD	348	US-2003/0030067	02-2003	Chen, Wei	
AOD	349	US-2003/0019517	01-2003	McFarland, Erick W.	
AOD	350	US-2002/0121088	09-2002	Zuppero et al.	Same as cite no. 177
AOD	351	US-2002/0070632	06-2002	Zuppero et al.	Same as cite no. 5
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AOD	345	US-6,649,823	11-2003	Zuppero et al.	
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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	361	Country Code ³ Number ⁴ Kind Code ⁵ (if known)	04-2001	Zuppero et al.	—
ADD	362	WO 01/28877A1	08-1990	—	—
		JP-02157012A			5
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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	373	ACHERMANN, M. et al., "Carrier dynamics around nano-scale Schottky contacts: a femtosecond near-field study". Applied Surface Science 7659 (2002) 1-4.	-
ADD	374	AESCHLIMANN, M. et al., "Competing nonradiative channels for hot electron induced surface photochemistry", Chemical Physics, April 15, 1996, pp. 127-141, Vol. 205, Issue: 1-2.	-
A2D	375	AESCHLIMANN, M. et al., "Ultrafast electron dynamics in metals", The Ultrafast Surface Science Group, http://www.ilp.physik.uni-essex.de/aeschlimann/ (Date Unknown).	Same as cite no. 37
ADD	376	AUERBACH, D. et al., "Reagent Vibrational Excitation: A Key to Understanding Chemical Dynamics at Surfaces?", abstract only. (Date Unknown).	-
ADD	377	BALANDIN, A. et al., "Significant decrease of the lattice thermal conductivity due to phonon confinement in a free-standing semiconductor quantum well", Physical Review B, July 15, 1998, Vol. 58, Issue 3, pp. 1545-1549.	-
ADD	378	BALANDIN, A. et al., "Effect of phonon confinement on the thermoelectric figure of merit of quantum wells", Journal of Applied Physics, December 1, 1998, Vol. 84, Issue 11, pp. 6149-6153	Same as cite no. 40
ADD	379	BONN, M. et al., "Phonon- Versus Electron-Mediated Desorption and Oxidation of CO on Ru(0001)", Science, Vol. 285, Number 5430, Issue of 13 Aug 1999, pp. 1042 - 1045-	-
ADD	380	CHANG, Y. et al., "Coherent phonon spectroscopy of GaAs surfaces using time-resolved second-harmonic generation", Chemical Physics, 251/1-3, pages 263-308, (2000).	Same as cite no. 280
ADD	381	CHEN, -C. et al., "Hot electron reduction at n-Si/Au thin film electrodes", Journal-of-the-Electrochemical-Society, Vol. 139, November 1992, pages 3243-3249.	Same as cite no. 52
ADD	382	CHOI, C.K. et al., "Ultrafast carrier dynamics in a highly excited GaN epilayer", Physical Review B, Vol. 63, 115315, 15 March 2001, 6 pages.	Same as cite no. 66

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

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ADD	383	DEBERNARDI, A. et al., "Anharmonic Phonon Lifetimes in Semiconductors from Density-Functional Perturbation Theory", Physical Review Letters, VOL. 75, NUMBER 9, 28 AUGUST 1995, pp 1819 - 1822.	Same as cite no. 64
ADD	384	DELFATTI, N. et al., "Temperature-dependent electron-lattice thermalization in GaAs", Physical Review B, 15 FEBRUARY 1999-I, Vol. 59, Number 7, pp 4576 - 4579.	Same as cite no. 74
ADD	385	DENZLER, D.N., et al., "Surface Femtochemistry: Ultrafast reaction dynamics driven by hot electron mediated reaction pathways", Femtochemistry and Femtobiology: Ultrafast Dynamics in Molecular Science. (World Scientific. 2002).	Same as cite no. 73
ADD	386	DIESING, D. et al., "Surface reactions with hot electrons and hot holes in metals", Surface Science, 331-333, 1995, pages 289 - 293.	-
ADD	387	DRISKILL-SMITH, A. A. G. et al., "The "nanotriode": A nanoscale field-emission tube", Applied Physics Letters, November 1, 1999, Vol. 75, Issue 18, pp. 2845-2847.	-
ADD	388	FAN, C. Y. et al., "The oxidation of CO on RuO ₂ - TiO ₂ at room temperature", Journal of Chemical Physics, Vol. 114, Number 22, 8 June 2001, p 10058.	Same as cite no. 200
ADD	389	FRESE, K.W., Jr. et al., "Hot electron reduction at etched n-Si/Pt thin film electrodes", Journal-of-the-Electrochemical-Society, Vol. 141, September 1994, pages 2402-9.	Same as cite no. 305
ADD	390	FUNK, S. et al., "Desorption of CO from Ru - 001 - induced by near-infrared femtosecond laser pulses", Journal of Chemical Physics, Vol. 112, Number 22, 8 June 2000, pages 9888 - 9897.	Same as cite no. 319
ADD	391	GADZUK, J. W., "Resonance-assisted hot electron femtochemistry at surfaces", Physical Review Letters, May 27, 1996, Vol. 76, Issue 22, pages 4234-4237.	-
ADD	392	GADZUK, J. W., "Multiple Electron Processes in Hot-Electron Femtochemistry at Surfaces". http://www.csli.nist.gov/div837/837.03/highlite/gadzuk1999.htm (Date Unknown).	Same as cite no. 304
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Sheet 54 of 62

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T2
ADD	394	GAILLARD, F. et al., "Hot electron generation in aqueous solution at oxide-covered tantalum electrodes. Reduction of methylpyridinium and electrogenerated chemiluminescence of Ru(bpy)32+". <i>Journal of Physical Chemistry B</i> , Vol. 101, No. 4, January 28, 1999, pages 667-74.	Same as cite no. 306
ADD	395	GAO, S., "Quantum kinetic theory of vibrational heating and bond breaking by hot electrons", <i>Physical Review B</i> , Vol. 55, No. 3, 15 January 1997-I, pages 1876-1886.	Same as cite no. 321
ADD	396	GERGEN, B. et al., "Chemically Induced Electronic Excitations at Metal Surfaces", <i>Science</i> , Vol. 294, Number 5551, Issue of 21 December 2001, pages 2521-2523.	Same as cite no. 82
ADD	397	GUO, J. et al., "The desorption yield dependence on wavelength of femtosecond laser from CO/Cu(111)", Annual Meeting of the American Physical Society, March 1999, Atlanta, GA; Session BC18 - Surfaces (General), ORAL session, March 21; Room 258W, GWCC (BC18.06).	Same as cite no. 89
ADD	398	HESS, S. et al., "Hot Carrier Relaxation by Extreme Electron - LO Phonon Scattering in GaN", http://www.physics.ox.ac.uk/taylor/images/hot%20carrier%20poster.pdf (Date Unknown).	Same as cite no. 89
ADD	399	HOFER, U., "Self-Trapping of Electrons at Surfaces", <i>Science</i> , Vol. 279, Number 5348, Issue of 9 January 1998, pages 190 - 191.	—
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ADD	401	LEE, B. C. et al., "Transmission of longitudinal optical phonons through a barrier in uniaxial crystals", <i>Physical Review B</i> , Vol. 65, 153315, 15 April 2002.	—
ADD	402	NANOLITE, "NANOLITE Sparkflashlamp", http://www.hps.com/products/nanolite.htm (Date Unknown).	—
ADD	403	NIENHAUS, H., "Electronic excitations by chemical reactions on metal surfaces", <i>Surface Science Reports</i> , 45, (2002), pages 1 - 78.	Same as cite no. 104

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STATEMENT BY APPLICANT**

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Sheet 55 of 62

Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number, publisher city and/or country where published	T ²
ADD	404	PLIHAL, M. et al., "Role of intra-adsorbate Coulomb correlations in energy transfer at metal surfaces", Physical Review B, July 15, 1998, Vol. 58, Issue 4, pages 2191-2206.	Same as cite no. 168
ADD	405	PONTIUS, N. et al., "Size-dependent hot-electron dynamics in small Pd-clusters", Journal of Chemical Physics, December 8, 2001, Vol. 115, Issue 22, pages 10479-10483.	Same as cite no. 121
ADD	406	PRYBYLA, J. A. et al., "Femtosecond time-resolved surface reaction: Desorption of CO from Cu(111) in < 325 fscc", Physical Review Letters, January 27, 1992, Vol. 68, Issue 4, pp. 503-506.	—
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ADD	408	SAALFRANK, P. et al., "Quantum dynamics of bond breaking in a dissipative environment: Indirect and direct photodesorption of neutrals from metals", J. Chem. Phys. 105 (6), 8 August 1996, pages 2441 - 2454.	—
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Application Number	10/625,801
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First Named Inventor	Anthony C. Zupperto
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Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No.*	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
ADD	413	DANIEL J. AUERBACH, Hitting the Surface Softly, www.sciencemag.org, Vol 294 Science, December 21, 2001, pp. 2488-2489.
ADD	414	M.D CUMMINGS AND A.Y ELE' ZZABI, Ultafast Impulsive excitation of coherent longitudinal acoustic phonon oscillations in highly photoexcited InSb, 2001 American Institute of Physics, Volume 79, Number 6, August 6, 2001.
ADD	415	J.W. GADZUK, Resonance-Assisted Hot Electron Photochemistry at Surfaces, National Institute of Standards and Technology, Gaithersburg, Maryland 20899, Physical Review Letters, Volume 76, Number 22, May 27, 1996.
ADD	416	BRIAN GERGEN, HERMAN NIENHAUS,W., HENRY WEINBERG, ERIC W. McFARLAND, Chemically Induced Electronic Excitations at Metal Surfaces, www.sciencemag.org, Vol 294, December 21, 2001, Pgs 2521-2523.
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ADD	422	XIAOFENG, FAN, GEHONG, CHRIS LABOUNTY, AND BOWERS, JOHN E., CROKE, EDWARD, AHN, CHANNING C., HUXTABLE, SCOTT, MAJUNDAR, ARUN, SHAKOURI, ALI; SiGe/Si superlattice microcoolers; Applied Physics Letters, Volume 78, Number 11, 12 March 2001, Pg: 1580-1582.
ADD	423	FRIEDMAN, L., SUN G., SOREF, R.A.; SiGe/Si THz laser based on transitions between inverted mass light-hole and heavy-hole subbands; Applied Physics Letters, Volume 78, Number 4, 22 January 2001; Pg: 401-403.

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Application Number	10/625,801
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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

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ADD	424	HARRISON, P., SOREF, R.A.; Population-inversion and gain estimates for semiconductor TASER. (Date Unknown).	Same as cite no. 29
ADD	425	HARRISON, P., SOREF, R.A.; Room temperature population inversion in SiGe TASER design. (Date Unknown).	Same as cite no. 31
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ADD	430	MD. GOLAM MOULA, SURGIO WAKO, GENGYU CAO, IVAN KOBAL, YUICHI OHNO, TATSUO MATSUSHIMA; Velocity distribution of desorbing CO ₂ in CO oxidation ion Pd(110) under steady-state conditions; applied surface science; 169-170 (2001); Pgs: 268-272.	Same as cite no. 230
ADD	431	JEAN-PHILIPPE MULAT, KARL JOULAIN, RBMI CARMINATI, AND JEAN-JACQUES GREFFERT; Nanoscale radiative heat transfer between a small particle and a plane surface; Applied Physics Letters; Volume 78, Number 19; 7 May 2001; Pg: 2931-2933.	Same as cite no. 102

Journal of
chemical Physics
Vol. 110 (21)
P. 10660, (1999).

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Sheet 58 of 62

Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122678-70

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ADD	432	H. NIEHAUS et al., "Direct detection of electron-hole pairs generated by chemical reaction on metal surfaces", Surface Science 445 (2000), Pages 3350342.	Same as cite no. 103
ADD	433	H. NIEHAUS et al., " Selective H atom sensors using ultrathin Ag/Si Schottky diodes", Applied Physics Letters, Volume 74, Number 26, 28 June 1999, Pages 4046-4048.	Same as cite no. 106
ADD	434	JJ PAGGEL et al., "Quantum-Well States as a Fabry-Perot Modes in a Thin-Film Electron Interferometer", www.Sciencemag.org Science Vol 284 12 March 1999, Pages 1709-1711.	Same as cite no. 111
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ADD	438	R.A SOREL et al., "Terahertz gain in a SiGe/Si quantum staircase utilizing the heavy-hole inverted effective mass, Applied Physics Letters, Volume 79, Number 22, 26 November 2001, Pages 3639-3641.	Same as cite no. 36

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Sheet

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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ADD	439	G. SUN et al., "Phonon-pumped terahertz gain in n-type GaAs/AlGaAs Superlattices", Applied Physics Letters, Volume 78, Number 22, Pages 3520-3522 (2001).	Same as cite no. 32
ADD	440	V. P. ZHDANOV et al., "Substrate-mediated photoinduced chemical reactions on ultrathin metal films", Surface Science 432 (1999), Pages L599-L603.	Same as cite no. 150
ADD	441	H. PARK et al., "Nanomechanical oscillations in a single-C60 transistor", Letters to nature, Volume 407, September 7, 2000, www.nature.com, Pages 57-60.	—
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Sheet

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppéro
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	2212287-70

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

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ADD	448	P. ARMOUR et al., "Hot-electron transmission through metal-metal interfaces: a study of Au/Pt/Au trilayers in GaAs substrates", Applied Surface Science 123/124 (1998), Pages 412-417.	
ADD	449	C.D. BEZANT et al., "Intersubband relaxation lifetimes in p-GaAs/AlGaAs quantum wells below the LO-phonon energy measured in a free electron laser experiment", Vacuum Solutions Online, Semicond. Sci. Technol. 14 No. 8 (August 1999) L25-L28, PIL: S0268-1242(99)03669-X.	Same as cite no. 46
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Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U. S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.*	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
ADD	454	US- 6,114,620	09-05-2000	Zuppero et al
ADD	455	US- 5,841,585	01-24-1997	Lessing et al
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ADD	457	US- 4,793,799	12-27-1988	Goldstein et al
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ADD	460	US- 4,045,359	08-1977	Fletcher et al
ADD	461	US- 4,407,705	10-1983	Garscadden et al
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ADD	463	US- 6,114,620	08-2000	Zuppero et al
ADD	464	US- 6,218,608	04-2001	Zuppero et al
ADD	465	US- 6,222,116	04-2001	Zuppero et al
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ADD	469	US- 2002/0017827	02-2002	Zuppero et al
ADD	470	US- 2002/0196825	12-2002	Zuppero et al
ADD	471	US- 2002/0196825	01-2003	Zuppero et al
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FOREIGN PATENT DOCUMENTS				
Examiner Initials*	Cite No.*	Foreign Patent Document Country Code ⁴ Number ⁵ Kind Code ⁶ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document

Examiner Signature	<i>Alan D.</i>	Date Considered	5/10/05
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Examiner Name	Alan D. Diamond
Attorney Docket Number	2212287-70

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